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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,878

06/15/2005

Toshiharu Yanagida

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03/11/2008

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EXAMINER

TYNAN, MATTHEW

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/539,878	<b>Applicant(s)</b> YANAGIDA, TOSHIHARU	
	<b>Examiner</b> MATTHEW TYNAN	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/2007 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claim 9 is objected to because of the following informalities: the claim recites, "...any of claims 1 to 5..." However, claim 4 has been cancelled. The claim should be amended to recite "...any of claims 1, 2, 3, or 5..." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5, 6, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagida et al. (U.S. 2002/0097369) in view of Nakao et al. (U.S. 6,088,075) and Hosoyamada (6,414,740).

6. Regarding claim 1, Yanagida et al. discloses a light control device comprising: opposing substrates with a gap therebetween; liquid crystal in said gap sealed between said opposing substrates; an image processing unit which detects a luminance signal of said liquid crystal (see [0053]); and a pulse control unit which controls a width of a pulse of an applied voltage for driving said liquid crystal, the pulse control unit controlling said width of said pulse according to said luminance detected by said image processing unit (see [0101]).

7. The reference does not disclose that the liquid crystal is a polymer network liquid crystal with optically transparent electrodes on gap-side surfaces of each of said opposing substrates and in contact with said liquid crystal, wherein the gap between said opposing substrates along an effective optical path has a width between about 4 microns and about 11 microns.

8. However, Nakao et al. teaches a polymer network liquid crystal with optically transparent electrodes on gap-side surfaces of each of said opposing substrates and in contact with said liquid crystal, wherein the gap between said opposing substrates along an effective optical path has a width between about 4 microns and about 11 microns. It would have been obvious to one of ordinary skill in the art at the time of the invention modify the device of Yanagida et al. using the PDLC layer taught by Nakao et al. because the PDLC light-control does not require polarizers and thus has a high light-efficiency.

9. Yanagida et al. fails to disclose a temperature detecting unit which detects a temperature of said liquid crystal. However, Hosoyamada discloses: a temperature detecting section (3,4, Fig. 2) which detects the temperature of the liquid crystal element; a pulse control section (5, 7, Fig. 2) which controls the applied voltage for driving said liquid crystal element according to the temperature (col. 6, lines 3-19).

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10. Hosoyamada further discloses that the temperature detecting section allows the device to achieve optimal control of the drive voltage in accordance with temperature change and thus stabilize optical characteristics with respect to the temperature change (col. 5, lines 36-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device taught by Yanagida et al. and Nakao et al. using the temperature detecting device taught by Hosomayada in order to achieve optimal control of the drive voltage in accordance with temperature change and thus stabilize optical characteristics with respect to the temperature change. Furthermore, it would have been obvious to control the pulse width of the applied voltage according to the temperature, since Yanagida et al. suggests driving the device by pulse width modulation ([0101]). Therefore, claim 1 is unpatentable.

11. Regarding claim 2, Nakao et al. does not specify a gap width between about 6 microns and 10 microns. However, the reference does teach the gap should be less than 18 microns, and specifies a thickness of 10 microns. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed.Cir. 1990). See MPEP § 2144.05. The reference also teaches that the thickness can be optimized for switching speed and light scattering. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Therefore, claim 2 is unpatentable.

12. Regarding claim 3, Nakao et al. discloses the opposing substrates are optically transparent. Therefore, claim 3 is unpatentable.

13. Regarding claim 5, Yanagida et al. discloses that the applied voltage is an AC pulse voltage. Therefore, claim 5 is unpatentable.

14. Regarding claim 6, the combination of Yanagida et al., Nakao et al., and Hosoyamada teaches a light control device having opposing substrates with a gap therebetween, liquid crystal in said gap sealed between said opposing substrates, said liquid crystal being a polymer network liquid crystal, optically transparent electrodes on gap-side surfaces of each of said opposing substrates and in contact with said liquid crystal, an image processing unit which detects a luminance signal of said liquid crystal, a temperature detecting unit which detects a temperature of said liquid crystal, a pulse control unit which controls a width of a pulse of an applied voltage for driving said liquid crystal based on both of said temperature detected by said temperature detecting unit and said luminance signal detected by said image processing unit, and said gap between said opposing substrates along an effective optical path has a width between about 4 microns and about 11 microns.

15. Furthermore, Yanagida et al. discloses applying a voltage for driving the liquid crystal element. Hosoyamada teaches detecting a temperature of the liquid crystal element and controlling the applied voltage for driving the liquid crystal element according to the detected temperature of the liquid crystal element. It would have been obvious to one of ordinary skill in the art at the time of the invention to drive the device taught by Yanagida et al., Nakao et al., and Hosoyamada according to the driving method disclosed by Hosoyamada in order to achieve optimal control of the drive voltage in accordance with temperature change and thus stabilize optical characteristics with respect to the temperature change. Therefore, claim 6 is unpatentable.

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16. Regarding claim 8, Yanagida et al. discloses that the applied voltage is an AC pulse voltage.

17. Regarding claim 9, Yanagida et al. discloses an image pickup apparatus, wherein the light control device is disposed in the optical path of an image pickup system of the image pickup apparatus. Therefore, claim 9 is unpatentable.

18. Regarding claim 10, Hosoyamada teaches that the detected temperature is an environmental temperature. Therefore, claim 10 is unpatentable.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW TYNNAN whose telephone number is (571)270-1433. The examiner can normally be reached on Mon-Fri. 7:30-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/M. T./

Examiner, Art Unit 2871

/Andrew Schechter/

Primary Examiner, Art Unit 2871